

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the June 2004 question papers

0418 INFORMATION TECHNOLOGY

0418/01	Paper 1 (Written), maximum raw mark 80
0418/02	Paper 2 (Written), maximum raw mark 80
0418/03	Paper 3 (Practical), maximum raw mark 70
0418/04	Paper 4 (Practical), maximum raw mark 72

These mark schemes are published as an aid to teachers and students, to indicate the requirements of the examination. They show the basis on which Examiners were initially instructed to award marks. They do not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

- CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the June 2004 question papers for most IGCSE and GCE Advanced Level syllabuses.



Grade thresholds taken for Syllabus 0418 (Information Technology) in the June 2004 examination.

	maximum mark available	minimum mark required for grade:			
		A	C	E	F
Component 1	80	56	45	32	29
Component 2	80	42	28	18	13
Component 3	70	65	55	40	34
Component 4	72	64	46	25	19

The threshold (minimum mark) for B is set halfway between those for Grades A and C. The threshold (minimum mark) for D is set halfway between those for Grades C and E. The threshold (minimum mark) for G is set as many marks below the F threshold as the E threshold is above it.

Grade A* does not exist at the level of an individual component.

JUNE 2004

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 80

SYLLABUS/COMPONENT: 0418/01

**INFORMATION TECHNOLOGY
Paper 1 (Written)**

Page 1	Mark Scheme	Syllabus	Paper
	INFORMATION TECHNOLOGY – JUNE 2004	0418	1

Question Number	Answers	Part Mark
1	A - Desktop computer	1
	B - Deskjet printer	1
	C - Tracker ball	1
	D - Compact disc	1
	E - Floppy disc	1
2	Monitor	1
	Plotter	1
3	Two from: Hard discs are not portable Hard discs hold more data/information Hard discs have faster data access times Hard discs have faster data transfer rates Any point above which is reworded from point of view of floppy disc is acceptable e.g. floppy discs are portable	2
4	True	1
	False	1
	False	1
	False	1
5	Right 90	1
	Forward 75	
	<u>Right 90 / Penup</u>	1
	Penup / right 90	
	Forward 20	1
	<u>Pendown</u>	
	Forward 40	1
	Penup	
	<u>Forward 20</u>	1
	Pendown / right 90	
	Right 90 / pendown	1
	<u>Forward 75</u>	
Right 90	1	
Forward 20		
<u>Right 90</u>		
6	Letters are sent out automatically	1
	It is easier to see if a certain book is available for borrowing	1

Page 2	Mark Scheme	Syllabus	Paper
	INFORMATION TECHNOLOGY – JUNE 2004	0418	1

Question Number	Answers	Part Mark
7	Two from: Backache RSI Eyestrain / affect eyesight Headaches Deep-veined thrombosis Two from: Get straight back chairs/Sit with straight back/Don't slouch/Do finger exercises periodically/adjustable chair. Get anti-glare screens/look away from screen periodically. Have eyesight tested/get glasses. Take regular breaks. Wrist rests TFT / LCD / Plasma screens If a precaution is repeated it can only gain 1 mark for the first appropriate mention. Comfortable chair = 0	2 2
8a	=SUM(B2:D2) or =B2+C2+D2 or =SUM(B2, C2, D2) (= sign is optional)	1
8b	=MIN(B2:B5) / =MINIMUM(B2:B5) (= sign is optional)	1
9ai	text/alphanumeric	1
9aii	lookup/list/text/alphanumeric combo box, drop down list, digit are all 0	1 1
9aiii	numeric/integer	1
9b	range check data is less than 0 (is invalid) Greater than 7 (is invalid)	1 1 1
10a	Three from: Temperature Moisture/water/rainfall Pressure Light Humidity Wind speed Wind direction	3
10b	Data is analogue (computers are digital)	1
10c	ADC	1

Page 3	Mark Scheme	Syllabus	Paper
	INFORMATION TECHNOLOGY – JUNE 2004	0418	1

Question Number	Answers	Part Mark
10d	<p>Three from:</p> <ul style="list-style-type: none"> Computer can take readings during holidays Computer readings are more accurate Readings can be taken more frequently Readings can be taken any time of day or night Results/graphs can be produced more easily/automatically Readings can be taken more reliably Humans can be more productive if not collecting data 	3
11	<p>Collect the data Enter the data Verify the data Print the results 4 in correct order = 4 Any 3 in the right order = 3 marks Any 2 in the right order or position = 2 Collect the data first (the rest wrong) / Print the results last (the rest wrong) = 1 Just having one item in correct position (except collect and print) = 0</p>	4
12	<p>Input – Temperature / time using keypad Output – Heaters switched on/off Three from: Processing – three from –</p> <ul style="list-style-type: none"> sensor temperature / internal clock is compared with preset value / keyed in value if too high/keyed in time not reached – heater switched off if too low/keyed in time reached – heater switched on <p>if it is clear that candidate thinks that the sensor is doing the controlling then 0 marks for processing and output.</p>	1 1 3
13	<p>Advantages – two from:</p> <ul style="list-style-type: none"> Cannot write to it so cannot be changed Use of sound Animation/Video Search of data quicker Can printout data conveniently Takes up less space More portable <p>Disadvantages – two from:</p> <ul style="list-style-type: none"> Need a computer to use it/Haven't got a suitable computer/Computer needs CD Rom drive/Computer could crash/needs electricity Cannot be read in awkward locations Need to learn how to use it Takes time to start up a computer More easily stolen You can't add notes to a CD 	2 2

Page 4	Mark Scheme	Syllabus	Paper
	INFORMATION TECHNOLOGY – JUNE 2004	0418	1

Question Number	Answers	Part Mark
14a	Three from: Photo taken using digital camera/ordinary camera or picture drawn Downloaded/loaded from CD Rom/scanned Saved as file Magazine document loaded Imported/copied and pasted/inserted into document Position the picture	3
14b	Two from: Internet Clipart CD Rom Scanned images Use of art/drawing package Use of camera allowed only if not present in (a)	2
	Insert from file/copy and paste	1
14c	Two from: For colour school might have to use inkjet – not totally reliable on long print runs Take a long time in colour Expensive to use colour cartridges May need to change cartridges and interrupt print run	2
15a	Bar code reader/magnetic stripe reader OMR = 0	1
15b	Student number or equivalent unique identifier	1
15c	Three from: Proposed system – Students could 'clock' other students in Students could lose cards Time taken to register students without cards Fingerprints – Personal liberty issues Would not be able to 'clock' each other in Both – System could malfunction Expensive to install Would save teachers/office staff time More accurate/less chance of human error recording of attendance	3

Question Number	Answers	Part Mark
18	<p>Five from:</p> <p>Input: Light sensor sends measurement back to microprocessor ADC converts this to digital</p> <p>Processing: Amount of light is compared With preset value If higher – nothing happens If lower or equal sends signal to light</p> <p>Output: Light switched on</p> <p>0 marks for processing and output if sensor doing the control Digital timer holding sunset and sunrise times and then sending a signal is 2 max Answers relating to traffic lights must contain appropriate input (not light sensor), processing and output to achieve marks</p>	5

JUNE 2004

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 80

SYLLABUS/COMPONENT: 0418/02

**INFORMATION TECHNOLOGY
Paper 2 (Written)**

Page 1	Mark Scheme	Syllabus	Paper
	INFORMATION TECHNOLOGY – JUNE 2004	0418	2

Question Number	Answers	Part Mark
1	Bar code reader	1
	Keyboard	1
2	Floppy disc	1
	Magnetic tape	1
3	Robots never take breaks	1
	Robots don't need paying	1
4	False	1
	True	1
	False	1
	True	1
5	Design	1
	Evaluation	1
	Validation	1
	Encryption	1
6	Advantages	
	Two from:	
	Do not have to access questionable websites	
	Doesn't take as long to find required information/It's easier to find	
	Don't have to have a modem/don't have to have a reliable Internet connection/don't have to have the Internet	
	Don't need to be near a telephone line/CD ROM is portable	
	Once CD Rom is bought there is no additional expenditure	
	Less likely to download viruses	
	Possible to be hacked into	2
	Disadvantages	
One from:		
CD Rom can be lost/stolen		
CD Rom can be damaged		
Internet is up to date/CD Rom is soon out of date		
Internet is just cost of phone call/CD ROMs can be expensive	1	
Quicker can be either if qualified		

Page 2	Mark Scheme	Syllabus	Paper
	INFORMATION TECHNOLOGY – JUNE 2004	0418	2

Question Number	Answers	Part Mark
7a	Customer reference no./Customer name/Video reference number/video title	1
7b	Direct/random	1
7c	Two from: Presence check on any field Range check on price Length/range check on video reference number Range check on length of video Range check on year of make Format check on reference number Check digit on bar code of video Lookup list on genre Do not allow type check One for each check - One for what it is checking Must be different checks and different fields	4
7d	One from: Customers could have a bar code/magnetic stripe on the card (This would be read by) bar code reader/magnetic stripe scanner/reader	1
7e	Two from: Quicker to (input/enter) Less likelihood of errors (on input) Less chance of non-member using member's number	2
8a	Borrower number Personal data 2 marks for 4 items, 1 for 3 items else 0 Acceptable items of personal data are: Name/Surname/Forename Address/Postcode/Box number/Location Home phone number Works phone number Identity card number/driving licence number Gender Occupation Date of birth Date membership valid until/date membership started Do not accept 'age' Books borrowed / Outstanding fines Information fills the page and boxes or lines are present for data entry	5
8b	Visually checking data comparing to original Entering data twice and comparing Can be descriptions of two versions of double entry	1 1

Page 3	Mark Scheme	Syllabus	Paper
	INFORMATION TECHNOLOGY – JUNE 2004	0418	2

Question Number	Answers	Part Mark
8c	Hard disc / zip drive Reasons: Two from (Lots of borrowers therefore) large capacity required Need to access data quickly (therefore direct access needed) (Needs to be secure therefore) non-portable medium required Needs to be updated regularly	1 2
8d	Data can be seen and personal details spread about/blackmail Data can be changed Data can be deleted An example will get a mark providing it is feasible.	 3
8ei	Normal data is data which is usual for the situation (e.g. a number in the range 0 to 100 for an exam score)/has an expected outcome Extreme data is data which is at either end of a normal range of data (e.g. the numbers 0 and 100 for an exam score) Abnormal data is data which is outside the acceptable range (e.g. - 20 or 125 for an exam score) or is of the wrong data type 1 mark for each correct answer	 3
8eii	Three from: Parallel running — running both the old and new systems together (until new system is free of errors) Phased implementation — old system is replaced in phases i.e. one aspect is replaced by new system then second aspect and so on. Direct changeover — old system is replaced by new system in one go almost overnight. Pilot running — one part of system is replaced and as soon as it is successful next part is replaced (mixture of phased and parallel running) Names are not essential but descriptions should be present.	 3

Page 5	Mark Scheme	Syllabus	Paper
	INFORMATION TECHNOLOGY – JUNE 2004	0418	2

Question Number	Answers	Part Mark
10a	Two from: Date of issue Bank code/Sort code Branch code Customer code/Account number/Card number Expiry date Not credit limit, PIN, name, address, issue number/ID number	2
10b	Two from: If the card is valid Credit limit not exceeded Credit card not reported stolen Expiry date has not been exceeded Start date/date of issue not reached PIN if 'chip' is mentioned	2
11a	Three from: Microphone Web Cam/Video camera Speakers/earphones Sound card Video card Modem/ISDN/ADSL/Network card/satellite link	3
11b	Three from: Do not have to pay for conference room Do not have to pay employee travelling expenses / Companies do not have to transport their employees to a common meeting place Do not have to pay for hotel rooms/overnight stays Conferences can be called at short notice / Instant communication with all employees Time saved because of travelling Can work from home Don't have to carry documents to conference	3
12a	Any two realistic examples of modelling These must be specific examples Possibilities are Supermarket queues Flight simulation Budgets/tax systems Environmental conditions as a result of pollution Birth and death rates Rates of unemployment Extinction rates of endangered species	2

Page 6	Mark Scheme	Syllabus	Paper
	INFORMATION TECHNOLOGY – JUNE 2004	0418	2

Question Number	Answers	Part Mark
12b	Two from Real thing may be: Too dangerous Too expensive Too large a time scale required Wasteful of materials	2
13a	Five from: Current system is observed Mechanics/potential users interviewed Mechanics/potential users given questionnaires Existing documents examined User requirements decided System specification decided Knowledge base (designed) Inference engine (designed) Design rules/rule base Designing a method of displaying the results Hardware chosen	5
13b	Two from: Medical diagnosis Prospecting Tax Careers Chess games	2
14	Five from: Advantages: Reach a wider/worldwide audience/across many countries Improved public image Take orders on-line/apply for jobs on-line Save on fliers/leaflets Information can be updated at any time - no need to reprint fliers/leaflets Can target customers Information can be updated easily/available 24 hours a day = 0 Disadvantages: Lose personal touch Have to pay specialist to create website/have to learn web creation skills Harder to judge customer requirements if not in stock Expensive to set up website Publicity restricted to Internet users only Hackers/viruses = 0 NB - Must be at least one advantage and disadvantage to gain full marks	5